

METHODS FOR SURFACE-BIAXIALLY-TEXTURING AMORPHOUS FILMS

ABSTRACT

[0034] Methods for biaxially-texturing a surface-region of an amorphous material are disclosed, comprising depositing an amorphous material onto a substrate, and supplying active oxygen near the substrate during ion beam bombardment of the amorphous material to create an amorphous material having a biaxially textured surface, wherein the ion beam bombardment occurs at a predetermined oblique incident angle. Methods for producing high-temperature coated superconductors are also disclosed, comprising depositing an amorphous buffer film onto a metal alloy substrate, bombarding a surface-region of the amorphous buffer film with an ion beam at an oblique incident angle while supplying active oxygen to the surface-region of the amorphous buffer film in order to create a biaxially textured surface-region thereon, and growing a superconducting film on the biaxially textured surface-region of the amorphous buffer film to create a high-temperature coated superconductor.